

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

### REMARKS

Applicant asks that the examiner please note that revision markings in the above claim set assume that the changes submitted by the Applicant on 15 April 2004 in the Applicant's first After-Final Response. Further, Applicant notes that the above changes are identical to those informally submitted to the examiner for discussion on 15 October 2004. Since the examiner indicated that he would allow all claims according to those informally proposed amendments, Applicant believes that the case stands in condition for immediate allowance. Nevertheless, for the examiner's convenience, the arguments made in the After-Final Response of 15 April 2004 are repeated below, along with a more detailed explanation of the amendments made herein.

In the examiner's Final Action he maintains his obviousness rejection against claims 1, 2, 7, 10, 13, and 14 based on Wallace (of record) as modified by Koga (of record). Claim 1 stands as the lone independent claim in this rejected group and it includes the limitations of coherently transmitting transmit signals from a plurality of transmitters over different propagation channels to a plurality of receivers, and forming those transmit signals from information signals intended for different ones of the receivers such that, at each receiver, the wanted information signals combine and the unwanted information signals cancel.

Simply put, claim 1 sets out a method wherein different transmit signals are sent over different propagation paths to each one of the receivers with the transmit signals formulated such that the combination of transmit signals at each of the receivers' locations inherently combine to enhance the information signal intended for that particular receiver, while suppressing the information signals intended for the other

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

receivers. This selective constructive combining of wanted information signals and destructive combining of unwanted information signals happens inherently at each receiver's location and is utterly independent of anything the individual receivers might or might not do by way of additional interference cancellation. That is, and the examiner has utterly failed to address this point in Applicant's last response, the claimed transmit signals combine in free space at each receiver's location to achieve the wanted signal combining and unwanted signal cancellation. The amended claim 1 makes clear that the selective constructive and destructive combining happens in free space at the intended receiver.

Wallace simply does not disclose formulating transmit signals in the claimed manner and Koga does nothing to remedy that fatal defect. Contrariwise, the examiner asserts that Wallace does teach the claimed formulation of transmit signals but this assertion will not be supportable in the face of any considered analysis, such as will have to be undertaken by the examiner on Applicant's appeal of this final rejection.

Specifically, the examiner cites to Wallace at col. 24, lines 25-54 and col. 24, lines 53-61, for the proposition that Wallace teaches transmit signals that constructively and destructively combine in the claimed manner. The only thing disclosed by Wallace at the cited passages is a receiver that includes multiple receive antennas to receive transmit signals from a number of transmit antennas, and a combining circuit to orthogonalize and combine the various received signals. This passage of Wallace does not even suggest that the transmitting system can formulate and coherently transmit a number of transmit signals over different propagation paths such that, without operation

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

by the intended receiver, the different transmit signals inherently combine in the claimed manner at the receiver's physical location.

Indeed, the examiner admits that Wallace does not disclose formulating its transmit signals such that unwanted information signals cancel at each receiver's location, but erroneously claims that Koga adds such teaching. This assertion by the examiner is mistaken and will fail on appeal. The examiner cites to Koga at col. 1, lines 40-53, for the proposition that Koga teaches the claimed cancellation of unwanted signals. Koga offers no such teaching and, indeed, discloses only that the receiver processing might be carried out in a way to achieve the desired interference cancellation. What such receiver processing has to do with making the claimed formulation of transmit signals to achieve inherent cancellation at each receiver's location is left un-addressed by the examiner in his earlier rejection, and similarly goes un-addressed in his final rejection.

Because neither Wallace nor Koga, nor any combination of the two teaches the claimed method, Applicant is not compelled to comment on the examiner's proffered reasons for why it would be obvious to combine the two references. However, it is worth noting that the receiver operations of Koga are less sophisticated than those outlined in Wallace, and that the receiver cancellation operations the examiner proposes to take from Koga are already performed by the receiver(s) of Wallace as adapted for the transmit/receiver diversity context described in Wallace. Therefore, one skilled in the communication arts frankly would not perceive Koga as offering anything to Wallace in terms of enhancing or improving performance. Indeed, one skilled in the

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

art might fairly question why one would understand Koga as being relevant to Wallace at all.

The examiner makes further obviousness rejections of claim 15-17, 19-24, 41-43, 46, 51-55, 58-60, 63, and 64, again using Wallace as the base reference but this time in combination with Harrison (of record). Again, without belaboring the point and with reference to the above arguments, Wallace simply does not disclose what the examiner asserts that it does. Specifically, Wallace does not disclose forming transmit signals for transmission over different propagation paths, wherein the transmit signals are formed of combinations of different information signals weighted in a manner such that unwanted information signals tend to cancel at each receiver's location and wanted information signals tend to add.

Note that in these rejections, the examiner makes reference to various passages in Wallace at cols. 2, 8, 9, 13, 14, and 24, for the proposition that Wallace discloses preconditioning the transmit signals to achieve the claimed signal cancellation. Applicant has carefully read every word in the cited passages and finds only that Wallace discloses using channel state information to compensate the transmission of channels or sub-channels intended for a given receiver. Critically, it does not disclose forming all of the combinations of information signals intended for the different receivers such that, at each receiver's location, the plurality of transmit signals inherently combine in a manner that tends to add the information signal intended for that receiver and tends to cancel the information signals intended for the other receivers.

In the amendments to independent claims 1, 15, 41, 51, and 55, Applicant adds clarifying language indicating that the claimed signal transmissions tend to add (or

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

cancel) in free space at each intended receiver. Respectfully, such operation is not taught or suggested by any of the references cited against the instant application, whether taken individually or in any combination.

For the same or similar reasons, the examiner's further obviousness rejections of claims 18, 25, 34, 37-40, 56, and 57, over Wallace in combination with Harrison, and in further view of Raleigh (of record) fail as a matter of law. Simply put, Wallace fails to disclose what the examiner alleges, and the addition of Harrison, Raleigh, or any combination thereof, does not remedy such failings. Similarly, the rejection of claim 23 based on Wallace in combination with Harrison and in further view of Dabak (of record), fails as a matter of law, at least for the reasons already articulated. It is unnecessary for Applicant to comment on the increasingly tenuous nature of the examiner's proffered reasons for why these combinations of references would be obvious to those skilled in the art for the simple reason that none of the proffered combinations teaches or suggest Applicant's invention.

Finally, independent claim 46 is amended above to include in whole the allowable subject matter of claim 47. Claim 47 is cancelled as a result of its incorporation into claim 46, and the associated dependent claims are amended where needed for correct dependencies.

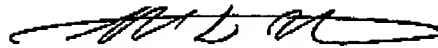
Thus, in summary, Applicant amends all independent claims in the instant application. Specifically, claims 1, 15, 41, 51, and 55, all are amended to clarify the constructive/destructive free-space combining of transmit signals at the intended receivers, and claim 46 is amended to include subject matter already indicated as allowable by the examiner. Because these changes are identical to those verbally

Ericsson Ref. No. P12628-US1  
Application Serial No. 09/915,896

approved by the examiner on 15 October 2004, Applicant believes that the instant application with all pending claims stands in condition for immediate allowance. Of course, if any issues remain, the examiner is encouraged to call the undersigned attorney.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.



Dated: 18 October 2004

Michael D. Murphy  
Attorney for Applicant  
Registration No. 44,958

P.O. Box 5  
Raleigh, NC 27602  
Telephone: (919) 854-1844